Claims

1. (Amended) An NO_x removal catalyst management unit for use with an NO_x removal apparatus, the management unit being provided for managing a plurality of NO_x removal catalyst layers provided in a flue gas NO_x removal apparatus, characterized in that the management unit comprises NO_x measurement means for determining NO_x concentrations on the inlet and outlet sides of respective NO_x removal catalyst layers; NH_3 measurement means for determining NH_3 concentrations on the inlet and outlet sides of the same NO_x removal catalyst layers; and percent NO_x removal determination means for determining percent NO_x removal (η) on the basis of an inlet mole ratio (i.e., inlet NH_3/inlet NO_x), the inlet mole ratio being derived from an NO_x concentration which is an NO_x concentration as measured on the inlet side by means of said NO_x measurement means and an NH_3 concentration which is an NH_3 concentration as measured on the inlet side by means of said NH_3 measurement means.

2. An NO_x removal catalyst management unit according to claim 1 for use with an NO_x removal apparatus, wherein the percent NO_x removal (η) is determined on the basis of NH_3 concentrations.

3. An NO_x removal catalyst management unit according to claim 2 for use with an NO_x removal apparatus, wherein the percent NO_x removal (η) is determined on the basis of the following equation (1):

η = {(inlet NH_3 - outlet NH_3)/(inlet NH_3 - outlet NH_3 + outlet NO_x)}×100×(evaluation mole ratio/inlet mole ratio) (1).

4. An NO_x removal catalyst management unit according to any of claims 1 to 3 for use with an NO_x removal apparatus, which management unit further includes transmission means for transmitting concentration values determined by the NO_x measurement means and the NH_3 measurement means to the percent NO_x removal determination means, wherein the percent NO_x removal determination means determines the percent NO_x removal (η) of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses.

5. (Amended) A method for managing an NO_x removal catalyst for use with an NO_x removal apparatus, the method being provided for managing a plurality of NO_x removal catalyst layers provided in a flue gas NO_x removal apparatus, characterized in that the method comprises determining NO_x concentrations and NH_3 concentrations on the inlet and outlet sides of respective NO_x removal catalyst layers; determining percent NO_x removal (η) on the basis of an inlet mole ratio (i.e., inlet NH_3/inlet NO_x); and evaluating performance of respective NO_x removal catalyst layers on the basis of the percent NO_x removal (η), the inlet mole ratio being derived from an NO_x concentration which is an NO_x concentration as measured on the inlet side and an NH_3 concentration which is an NH_3 concentration as measured on the inlet side.

6. A method according to claim 5 for managing an NO_x removal catalyst for use with an NO_x removal apparatus,

wherein the percent NO_x removal (η) is determined on the basis of NH_3 concentrations.

7. A method according to claim 6 for managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the percent NO_x removal (η) is determined on the basis of the following equation (1):

$\eta = \{(\text{inlet } NH_3 - \text{outlet } NH_3)/(\text{inlet } NH_3 - \text{outlet } NH_3 + \text{outlet } NO_x)\} \times 100 \times (\text{evaluation mole ratio/inlet mole ratio})$ (1).

8. A method according to claim 5 for managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the method further comprises performing restoration treatment of an NO_x removal catalyst layer having a catalytic performance deteriorated to a predetermined level, on the basis of results of performance evaluation of the respective NO_x removal catalyst layers.

9. A method according to claim 8 for managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the performance restoration treatment is replacement of the NO_x removal catalyst layer with a new NO_x removal catalyst layer, replacement of the NO_x removal catalyst layer with a regenerated NO_x removal catalyst layer, replacement of the NO_x removal catalyst layer with an NO_x removal catalyst layer inverted with respect to the direction of the flow of discharge gas, or replacement the NO_x removal catalyst layer with an NO_x removal catalyst layer from which a deteriorated portion has been removed.

10. A method according to any of claims 5 to 7 for

managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the method further comprises determining the percent NO_x removal of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses and evaluating catalytic performance of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses.

11. A method according to claim 8 for managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the method further comprises determining the percent NO_x removal of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses and evaluating catalytic performance of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses.

12. A method according to claim 9 for managing an NO_x removal catalyst for use with an NO_x removal apparatus, wherein the method further comprises determining the percent NO_x removal of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses and evaluating catalytic performance of respective NO_x removal catalyst layers included in a plurality of flue gas NO_x removal apparatuses.